

**ABSTRACT**

Nanostructures and methods of forming nanostructures, including nanowires, are disclosed. The methods involve deforming a film by compressing a stamp into a film. This deformation and the structure and geometry of the stamp may provide channels with energetically favorable and unfavorable interfacial interactions, enabling the selective transport of a chemical reagent through the channels. Various aspects of the relation of stamp geometry to the types of nanostructures that may be formed and the placement of these nanostructures are also disclosed. Nanostructures incorporating multi-dimensional patterned architectures are also disclosed.